

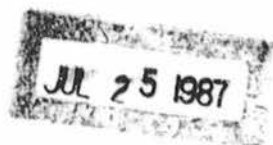
## CODING FORM FOR SRC INDEXING

REVISED 10/15/86

Microfiche No.		
OTS0515173		
New Doc I.D.	Old Doc I.D.	
86-870000547		
Date Produced	Date Recieved	TSCA section
12/13/84	7/25/87	8D
Submitting Organization		
INTL ISOCYANATE INST		
Contractor		
UNIV OF BIRMINGHAM		
Document Title		
FEASIBILITY STUDY ON THE MORTALITY AMONG WORKERS EXPOSED TO ISOCYANATES		
Chemical Category		
TOLUENE DIISOCYANATE (1321-38-6)		

E-AB-40

10243



EPA-OTS



000291722N

CONTAINS NO CBI

86-870000647

Mortality among workers exposed to isocyanates

Feasibility study

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December 13, 1984

Mortality among workers exposed to isocyanates  
Feasibility study

A guide to the data available from the personnel records held at ten factories using isocyanates is shown in the Table. These factories all use isocyanates in the manufacture of polyurethane foam (moulded products or slab).

Four factories started using isocyanates in the 1970's, five in the 1960's, and only one factory started using isocyanates as early as the 1950's.

In general, personnel records are not available for all employees (with a minimum period of employment of six months) who commenced employment in the 'year factory started using isocyanates'. The earliest years when such data are available are shown in the third column of the Table. For eight factories such data are not available until the 1970's. In general, some records will be available for entrants from earlier years, but they will not be a random sample of all entrants from earlier years, and their usefulness in an occupational mortality study cannot be guaranteed. The author recommends that a study should only be carried out on complete entry cohorts (complete for all practical purposes).

Two study populations should be considered.

study population 1

1. males
2. first employed : 1st January 1970 (or later date if all personnel records not available, see column 3) - 31st December 1979
3. minimum period of employment : six months
4. 'exposed' and 'non-exposed' workforce employees

study population 2

1. males
2. first employed in 'exposed' jobs (hot process worker, etc.)
3. first employed 1st January 1970 (or later date if all personnel records not available, see column 3) - 31st December 1979
4. minimum period of employment : six months

The first study population would comprise some 8000 workers, the second would comprise some 1300 workers. The study afforded by the first population would have greater statistical power than the second and is, therefore, recommended. It would probably not provide meaningful results until the 1990's. However, as the costs of 'flagging' a study population in the U.K. are 'once-and-for-all' costs, it may well make sense to 'flag' such a study population in the near future.

If earlier entry cohorts of isocyanates workers are available for follow-up in other countries, studies on these workers should be given precedence.

Analysis of study population 1

The author recommends that detailed occupational histories should not be collected initially, and for the following reasons:

- 1) such job histories would be very incomplete by the time the study was generating meaningful results
- 2) quality control would be very difficult
- 3) it would be expensive, and
- 4) it may not be necessary to collect detailed job histories for all members of the study population

The author recommends that the following procedure be adopted:

- 1) extract basic identifying particulars for each member of study cohort
- 2) 'flag' study cohort
- 3) obtain co-operation from companies, such that they keep all personnel records relating to any leavers
- 4) calculate overall SMR's
- 5) on the basis of cause-specific SMR's, and reports of other studies, determine 'causes of interest'
- 6) choose controls from study cohort for each 'death of interest' and go back to factories for detailed occupational histories of cases and controls
- 7) look for any association between risk of mortality from 'causes of interest' and occupational histories

Table. Summary of available data

factory number	1	2	3	4	5	6	7	8	9	10
year started using isocyanates	1972	1960	1963	1963	1958	1971	1971	1963	1962	1970
earliest year complete personnel records available <sup>a</sup>	1972	1979	1973	1968	1960	1971	1972	1972	1976	1974
current size of total workforce	135	317	174	700	626	218	100	194	150	500
number of personnel records available <sup>b</sup>	1000	1000	2000	10000	1000	1000	500	500	300	3000
% current workforce exposed	25	27	50	35	2	15	25	ALL	30	10
% workforce 'exposed' in 'year of starting' (row 2)	30	1	10	7	-	8	25	ALL	14	5
possible to distinguish 'exposed' and 'non-exposed' workers	Y	Y	Y	Y	Y	Y	Y	-	Y	Y
full Christian names available	Y	Y	Y	Y	Y	Y	Y	Y	N	Y
job or department changes recorded	Y	Y	Y	Y	Y	N	Y	Y	Y	Y
TDI in use or has been used	N	Y	Y	Y	Y	Y	Y	Y	Y	Y
MDI in use or has been used	Y	Y	Y	Y	N	Y	N	Y	Y	N

N = NO, Y = YES

a for those employees with minimum period of employment of 6 months

b past and present employees

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